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CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA

M Treasure

Da Noung Chaung Village, Myanmar

Packaging

Analysis period: 2017-2024

Areca Nut Palm Sheaths as a Biodegradable Plastic Packaging Alternative

Business Spotlight

M Treasure is a small-scale circular innovator producing an alternative to plastic packaging from the sheaths of areca nut palm (*Areca catechu*) which are transformed into packaging in Myanmar. Founded in 2017 by Mr Kyaw Kyaw Moe, M Treasure produces biodegradable packaging and eco-friendly products from naturally-shed areca nut palm sheaths that would otherwise be discarded as agricultural waste. This innovation recovers renewable biomaterials and transforms them into a viable substitute for conventional plastic packaging, particularly for food packaging. The biodegradable areca palm packaging and products are fully compostable, and using their compost can improve soil quality, reducing dependence on synthetic fertilisers and minimising energy use and waste generation. M Treasure provides a practical and local innovation that can be widely replicated and is scalable.

M Treasure demonstrates that sustainability and profitability can go hand in hand, with an average monthly profit of approximately USD 3,810 (MMK 8 million). The company's pioneering work in biodegradable areca palm packaging has earned national recognition through the Eco-Guardian Award, and accolades at Myanmar's MSME (micro, small and medium-sized enterprise) Product Showcase. As testimony to the firm's success, the market for areca-based packaging continues to expand, and thus M Treasure is planning to scale up both their operations and their supply chains.

Keywords

Biodegradable packaging, Agricultural waste, Areca nut palm

Innovation

Product/service design, Manufacturing, End-of-life management, Resource circularity, Resource substitution

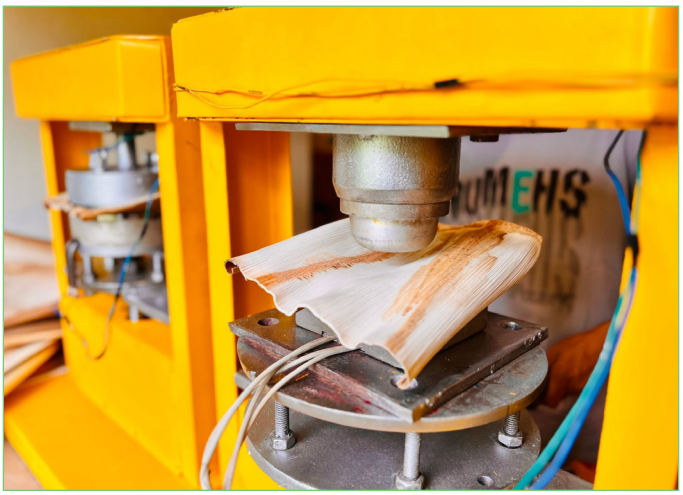
Analysis of M Treasure

Context and baseline

The extensive use of plastic in industry is driving a continuous surge in global plastic production from approximately 234 million tonnes (Mt) in 2000 to 460 Mt in 2019.[1] Production of plastic is expected to reach 1,124 Mt by 2050, which will contribute to an estimated environmental plastic-to-fish ratio in the oceans exceeding 1:1, while plastics account for 20% of global fossil-fuel consumption and 15% of the global carbon budget.[2] A major determinant of plastic use and waste is plastic packaging, which represents 37% of global plastics use.[3] Typically, the small size and low residual economic value of plastic packaging make it highly susceptible to leakage, particularly into aquatic ecosystems. Plastic packaging incurs an annual loss of USD 80–120 billion in value after a short initial use cycle.[4] Only 14% of plastic packaging waste is effectively recycled, while another 14% is incinerated. Alarmingly, 72% is not recovered at all, with some 40% ending up in landfills, and 32% leaking out of the formal waste management system, where it is either not collected or is improperly disposed of through illegal dumping.[5]

While comprehensive data for Myanmar are scarce and incomplete, there is abundant evidence of widespread leaking of plastic packaging waste into the environment from both urban and rural sources. Beyond the economic losses, these challenges present serious risks to human health, food security, and vital ecosystems, highlighting the critical need to accelerate the development and adoption of sustainable alternatives to plastic packaging.

Mr Kyaw Kyaw Moe has explored sustainable alternatives, both globally and from China and India in particular. He has also obtained insights about a diverse range of farming techniques and locally adapted cultivation methods from the northeastern states of India adjacent to Myanmar. His journey has led to the discovery of a circular packaging solution crafted from the naturally shed leaf sheaths of the areca nut tree (*Areca catechu*), offering a biodegradable and locally sourced solution that can directly replace single-use plastic packaging. He then established his company, M Treasure, to champion areca palm sheaths as a sustainable packaging alternative. This initiative not only limits plastic pollution but also fosters inclusive value chains involving both local farmers as raw material suppliers, and food businesses that are using areca-based packaging.

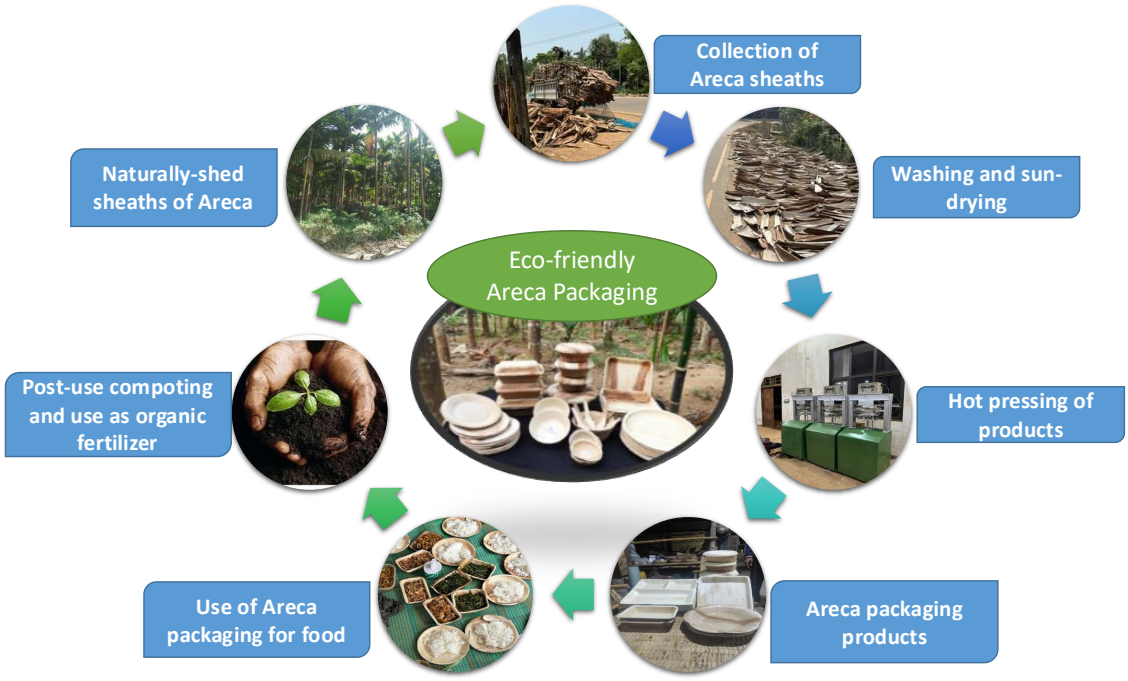


Innovation

Burmese people traditionally use areca leaves for various purposes in their local culture. Mon State, Taninthayi, and Ayeyawady are the largest areca palm-growing areas in Myanmar, producing around 230,000 tonnes of areca nuts annually,[6] and the yield of areca nuts exceeds local consumption. Around 15% of the areca plantation usually ends up as waste. Leveraging this natural resource, M Treasure identified an opportunity to address plastic waste by utilising the naturally shed leaf sheaths of these abundant areca nut trees, thereby contributing to sustainable consumption and production practices in Myanmar.

Transforming areca leaf sheaths into packaging involves a simple and low-impact process. The farmers collect the naturally-shed areca sheaths and transport them to the M Treasure. The areca sheaths are cleaned with a pressure wash and then scrubbed using a soft brush to remove sand and dust particles; next, they are sun-dried to remove moisture. Applying heat and pressure, the cleaned sheaths are then shaped into plates, bowls or boxes. This process requires no chemicals or synthetic binders, so the packaging products are 100% natural and compostable (potentially combined with food waste). The resulting compost constitutes a good organic

1 OECD (2022), Global plastics outlook. https://www.oecd.org/en/publications/global-plastics-outlook_de747aef-en.html#:~:text=This%20means%20that%20these%20instruments,product%20types%20and%20more%20countries
2 World Economic Forum (2016), The New Plastics Economy – Rethinking the future of plastics. https://www.greenpeace.org/static/planet4-philippines-stateless-release/2019/05/b1e5a437-b1e5a437-wef_the_new_plastics_economy.pdf
3 UNEP, 2021. Drowning in Plastics: Marine Litter and Plastic Waste – Vital Graphics. https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/36964/VITGRAPH.pdf
4 Ibid.
5 https://www.moi.gov.mm/moi:eng/news/14675
6 Ibid.



fertiliser that can improve soil health. M Treasure has developed boxes, plates, bowls, spoons, and so on of various shapes and sizes. Over fifteen product variations are currently produced, ranging in size from three to nine inches (approx. 7.6–23 cm), and in different shapes including circles, squares, and floral designs that are both functional and aesthetically appealing. The majority of products from M Treasure consists of biodegradable packaging boxes, plates and bowls (90% of production) and cutlery (10%).

Circular Economy impact

M Treasure contributes to the circular economy by transforming naturally-shed sheaths of the areca nut palm, a previously-discarded agricultural waste, into biodegradable packaging products to replace plastic packaging in the food sector. This transformation simultaneously recovers a wasted resource for a new use, which illustrates resource circularity, and replaces non-renewable plastics by a renewable alternative, which illustrates resource substitution.

Areca nut sheaths are thus diverted from waste and decomposition in fields or landfill by being recovered as a valuable material for use as packaging. This new material provides an eco-friendly alternative to Styrofoam, paper and/or plastic, and is also compostable and scalable. Each month, approximately 225,000 units of areca-based packaging products are manufactured, which directly substitutes for virgin plastic materials and avoids the greenhouse gas (GHG) emissions that would have been generated during the production of virgin plastics. Moreover, potential methane emissions from sheath decomposition are avoided as long as the areca packaging is fully and properly composted after its use.

Business and market impact

Amid a growing demand for eco-friendly packaging in Myanmar, supply remains limited. In 2017 M Treasure established a 500-acre areca nut palm plantation in a rural area with a USD 40,000 grant from the Swiss Responsible Business Fund. The company has invested in machinery and reached a production capacity of approximately 2,700,000 areca packaging products per year. Annual net profits are approximately USD 46,000 (MMK 96 million). The most sought-after items include round plates and square boxes. M Treasure serves over 500 domestic food businesses that have switched to areca-based packaging. This business clearly shows that shifting away from plastics to sustainable packaging is doable.

M Treasure has earned national recognition with the Eco Guardian Award and the National Level MSMEs Products Showcase Prize, highlighting its role as a sustainability frontrunner in the local packaging sector. The company further plans to expand the business by converting other agricultural waste such as peanut shells and paddy straw into value-added furniture and fuel products. The company is expanding into agroforestry practices, in which eucalyptus trees are planted between the farmlands.

Stakeholders

Community engagement is integral to the business model, with regular training sessions empowering locals to participate in eco-friendly areca box production and fostering circular entrepreneurship.

Local farmers are an essential part of M Treasure's value chain because they supply the naturally-shed areca leaf sheaths for conversion into

biodegradable packaging. In this way M Treasure fosters environmental stewardship and contributes to local livelihoods.

M Treasure operates as a small enterprise, with a dedicated team of twelve people contributing to both business and production functions. Women lead in key decision-making and technical roles and indeed in all areas from sourcing materials to product design, manufacturing and packaging. This gender-inclusive approach reflects the company's values of empowerment and community-driven innovation.

As part of its mission to reduce plastic dependency and promote green alternatives, M Treasure has collaborated on outreach and training initiatives with key regional projects, including the Prevent Plastics Plus project under the European Union SWITCH-Asia Programme, and Thant Myanmar. These efforts not only catalyse sustainable production but also enhance community resilience by equipping individuals with practical tools and knowledge.

Implementation

Myanmar's biodegradable packaging industry is witnessing dynamic growth; however, only a limited number of producers are currently operating to meet existing and anticipated demand. M Treasure is using this situation as an opportunity to find answers through its circular business model of areca palm sheath packaging and to build a resilient, inclusive supply chain for sustainable packaging solutions.

To support decentralised growth of the sector, M Treasure has conducted numerous capacity-building programmes for expanding the availability of areca products and offering machine rental schemes to enable aspiring entrepreneurs to launch packaging businesses with minimal upfront investment.

Despite operational constraints such as seasonal variability of raw materials, electricity disruptions and low profit margins due to prevailing political and logistical challenges, M Treasure is exploring ways to increase production and sales by expanding the production area, enlarging the production unit, exporting products to other countries, and producing other value-added products from agricultural waste such as furniture, footwear, and handmade fans, among others.

Takeaways

Myanmar is witnessing growing demand for biodegradable packaging, fuelled by increasing public concerns regarding unsustainable single-use plastic packaging. The supply of sustainable alternatives is still in its infancy, and the persistent supply-demand gap poses a key barrier to progress. M Treasure's success with areca leaf sheath packaging exemplifies how a locally available and un-utilised resource can provide the opportunity for producing bio-packaging material. The use of naturally-shed areca nut palm sheaths as eco-friendly packaging can thus mitigate plastic pollution and create economic opportunities for local farmers and businesses.

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